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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/640,204      | 08/16/2000  | Andrew C. Singer     | 1201.63069          | 3214             |

7590 11/25/2003

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EXAMINER

CORRIELUS, JEAN B

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2631

9

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/640,204

Applicant(s)

SINGER ET AL.

Examiner

Jean B Corrielus

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2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 is/are allowed.
- 6) ☒ Claim(s) 1, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 2-9 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nefedov US Patent Application No.US 2003/0118122 A1 in view of Djokovic et al US Patent No. 6,097,763.

Nefedov discloses a method and apparatus fig. 2 having a siso equalizer 209 having an input for receiving data from a noisy channel see fig. 2; inputting a set of prior symbol values on feedback path to said equalizer 209; equalizing in the SISO equalizer the data received over the noisy channel and the set of prior symbol values to produce a symbol value estimate; using the decoder 211 to decode (mapping) the equalizer output onto the prior symbol values to produce a confidence indication in each of the symbol value estimate as a function of time. However, Nefedov does not explicitly teach the use of MMSE algorithm. The use of such an algorithm is old and well established in the art. For instance Djokovic et al teaches the use of such an algorithm see abstract and summary section. Given that fact it would have been obvious to one skill in the art at the time the invention was made to incorporate such a teaching in Nefedov in

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order to provide a significantly better signal to noise ratio in the presence of colored noise as taught by Djokovic et al see col. 4, lines 12-16.

As per claim 12 it would have been obvious to one skill in the art to decode (map) the estimates by treating the output distribution as conditionally Gaussian and distributed about the symbol values so as to increase system reliability.

***Allowable Subject Matter***

3. Claims 2-9, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claim 10 is allowed.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1, 11 and 12 have been considered but are moot in view of the new ground(s) of rejection.

6. **Any response to this action should be mailed to:**

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Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 872-9314

(for informal or draft communications, please label "PROPOSED" or  
"DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA., Sixth Floor (Receptionist).

7. Any inquiry concerning this communication or earlier communications from the  
examiner should be directed to Jean B. Corrielus whose telephone number is (703) 305-4023.  
The examiner can normally be reached on Monday-Thursday from 7:00 A.M. to 5:30 P.M.

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Group receptionist whose telephone number is (703) 305-3800.

  
JEAN B. CORRIELUS  
PRIMARY EXAMINER

11-22-03